Listing of Claims:

1. (Currently Amended) ~~Process~~ A process for ~~the~~ automatic rectification of images, wherein an image is rectified by a mapping function onto a reference image ~~(R)~~, and at least some parameters of the mapping function are unknown, said process comprising:

extracting at least three objects ~~(O1-O3)~~ from the image ~~(O)~~;

determining at least three control points in the image, such that characteristic object points of the extracted objects are determined as control points;

obtaining positions of the at least three control points in the image, and comparing control point structures in the image to be rectified to control point structures in the reference image, each of the control point structures comprising a plurality of pixels;

calculating a resolution of the image and the reference image for an image area to determine which image area is less-resolved and which image area is more highly resolved, said image area of the image to be rectified comprising a control point structure and said image area of the reference image comprising a control point structure corresponding to the control point structure in the image to be rectified;

projecting the less-resolved image area onto the more highly resolved image area corresponding to a mapping function;

determining gray-scale values of respective pixels in the control point structure of the image and in a corresponding control point structure of the reference image;

forming differences of gray-scale values between adjacent pixels in each of the corresponding control point structures;

comparing differences in the corresponding control point structures for corresponding pixels to derive an error value;

shifting one of the control point structure in the image and the reference image in at least one of a vertical and horizontal direction such that a new position of the control point structure is obtained, said error value being determined in a manner identical to the manner in which the new position of the control point structure is obtained;

assigning the at least three objects ~~(O1-O3)~~ to objects ~~(O1'-O3')~~ in the reference image, such that assignment is made according to at least one of similarity between corresponding objects in the two images ~~and/or on the basis of~~ and based on a vector grid formed by connections between the characteristic object points; and

selecting one of a suitable mapping function and adjusting parameters of the mapping function, whereby the mapping function is changed by changing the parameters ~~in~~ such ~~a way~~ that cumulative error in positional differences between control points and corresponding points in the reference image is minimized.

2. (Currently Amended) ~~Process~~ The process according to claim 1, further comprising:

generating weighted control points for forming [[a]] the control point structure, comprising a limited number of pixels, around [[a]] the control point of at least one of the image and the reference image; and

projecting the control point structure, using the mapping function, onto the image serving as the image structure for determining whether there is also a corresponding image structure of sufficient quality, wherein the quality of the control point structure is measured by at least one of its variability, directional contrast[[, and/or]] and similarity, and weighting of the control points on the basis of said control point structure quality.

3. (Currently Amended) ~~Process~~ The process according to claim 2, further comprising:

adjusting a position of the control point in at least one of the image and the reference image;

adjusting, for at least one channel, a control point structure gray-scale value distribution form in the reference image, and a control point structure gray-scale value distribution form of the image structure in the image, to each other; and

determining, in at least one of the image and the reference image, whether there is at least one first difference between the gray-scale values of two adjacent pixels of the control point structure and at least one second difference between gray-scale values of corresponding pixels in the image structure.[[;]]

~~determining an error value from a difference between said first and second differences;~~

~~mapping a less resolved image structure component onto a more resolved image structure component; and~~

~~shifting the control point structure in at least one of the image and the reference image, in at least one of a vertical and a horizontal direction, to determine a new position error~~[[.]]

4. (Currently Amended) ~~Process~~ The process according to claim 2, further comprising adjusting at least one of individual parameters of the mapping function and a selection of a suitable mapping function, such that a change of the mapping function is made by said adjusting ~~in~~ such ~~a way~~ that a cumulative error of positional differences between projected control points and corresponding weighted control points in the reference image is minimized.

5. (Currently Amended) ~~Process~~ The process according to claim 1, further comprising performing a compensating calculation using a correction function, wherein, for at least two control points, at least one vertical and one horizontal correction value is determined, said correction values correcting for positional difference between a projected control point and a corresponding control point in the reference image, and wherein the correction function is determined as a function of the correction values.

6. (Currently Amended) ~~Process~~ The process according to claim 5, further comprising projecting corner coordinates of an image element onto image positions, wherein image positions of the corner coordinates are determined from the mapping function and the correction function.

7. (Currently Amended) ~~Process~~ The process according to claim 6, further comprising:

performing a resampling[[,]];

wherein corner coordinates ~~describe~~ define a polygon and ~~the~~ gray-scale values ~~enter into the~~ determine a final gray-scale value ~~in~~ from a correspondence with a percentage of areas of all image elements lying within the polygon.

8. (Currently Amended) ~~Process~~ The process according to claim 1, ~~characterized in that~~ wherein said step of extracting comprises performing at least one of a classification and a geometric structure analysis, said process further comprising:

analyzing ~~the~~ properties of the image and forming at least one of objects and areas of like classifications, if classification is performed; and

if the geometric structure analysis is performed, determining an edge contour of an object from contours of an area and numerically characterizing objects are a structure index.

9. (Currently Amended) ~~Device~~ A device for automatic rectification of images, wherein an image is rectifiable by a mapping function onto a reference image ~~(R)~~, and at least some parameters of the mapping function are unknown, said device comprising:

an extraction module ~~(1, 2)~~ for extracting at least three objects ~~(O1-O3)~~ from the image ~~(O)~~;

a control point determination module ~~(3)~~ for determining at least three control points in the image, wherein characteristic points of the extracted objects are determined as control points;

an object assignment module ~~(4)~~ for assigning the objects ~~(O1-O3)~~ to objects ~~(O1'-O3')~~ in the reference image, such that a correspondence between the

objects in the two images is established according to at least one of similarity between objects and a vector grid–formed by connecting characteristic object points; ~~and~~

a selection module for at least one of selecting a suitable mapping function and adjusting parameters of the mapping function, whereby the mapping function is changed by changing the parameters ~~in~~ such ~~a way~~ that cumulative error in positional differences between control points and ~~the~~ corresponding points in the reference image is minimized; and

a module for obtaining positions of the at least three control points in the image;

wherein control point structures in the image to be rectified are compared to control point structures in the reference image, each of the control point structures comprising a plurality of pixels, wherein a resolution of the image and the reference image for an image area are calculated to determine which image area is less-resolved and which image area is more highly resolved, said image area of the image to be rectified comprising a control point structure and said image area of the reference image comprising a control point structure corresponding to the control point structure in the image to be rectified, wherein the less-resolved image area is projected onto the more highly resolved image area corresponding to a mapping function; wherein gray-scale values of respective pixels in the control point structure of the image and in a corresponding control point structure of the reference image are determined, wherein differences of gray-scale values between adjacent pixels in each of the corresponding control

point structures are formed, wherein differences in the corresponding control point structures for corresponding pixels are compared to derive an error value, and wherein one of the control point structure in the image and the reference image in at least one of a vertical and horizontal direction is shifted such that a new position of the control point structure is obtained, said error value being determined in a manner identical to the manner in which the new position of the control point structure is obtained.

10. (Currently Amended) ~~Device~~ The device according to claim 9, further comprising a module ~~(6)~~ for generating weighted control points, by means of which [[a]] the control point structure comprising a limited number of pixels is formed around [[a]] the control point of at least one of the image and the reference image;

wherein the control point structure is mapped by the mapping function onto the image serving as the image structure, the quality of the control point structure is measured by at least one of its variability, directional contrast[[,]] and similarity, and weighting of the control points is determined on the basis of said control point structure quality.

11. (Currently Amended) ~~Device~~ The device according to claim 10, ~~comprising a module for adjusting a position of the control point in at least one of the image and the reference image~~[[,]] wherein the form of a gray-scale distribution of the control point structure and the form of the gray-scale distribution of the image structure are relatively adjustable on at least one channel, and wherein at least one first difference between gray-scale values of two adjacent

pixels of the control point structure, and at least one second difference between gray-scale values of corresponding pixels of the image structure, are formed.[[,]] ~~wherein an error value is determined from a difference between said first and second differences, wherein a less resolved image structure component is mapped onto a more highly resolved image structure component, and wherein the control point structure in at least one of the image and the reference image are shifted in at least one of a vertical and a horizontal direction, to find an error value for a new position~~[[.]]

12. (Currently Amended) ~~Device~~ The device according to claim 10, further comprising a module ~~(7)~~ for adjusting the parameters of the mapping function, wherein the mapping function is changed by changing the parameters ~~in~~ such ~~a way~~ that a cumulative error of positional differences between weighted control points and associated projected image points is minimized.

13. (Currently Amended) ~~Device~~ The device according to claim 9, further comprising a module ~~(8)~~ for performing a compensating calculation for determining at least one correction value in a vertical direction and one correction value in a horizontal direction, the correction values correcting the deviation of the value of the mapping function from the value of the compensating function at the location of the control point.

14. (Currently Amended) ~~Device~~ The device according to claim 9, further comprising a module ~~(9)~~ for mapping ~~the~~ corner coordinates of an image element onto image positions, wherein the image positions of the corner coordinates are determined from the mapping function and the correction function.

15. (Currently Amended) ~~Device~~ The device according to claim 9, further comprising a module ~~(10)~~ for performing a resampling, wherein the corner coordinates ~~describe~~ define a polygon, and wherein gray-scale values determine a final gray-scale value from a correspondence with a percentage of areas of all image elements within said polygon.

16. (Currently Amended) ~~Device~~ The device according to claim 9, wherein said extraction module includes means for performing at least one of a classification and a geometric structure analysis, wherein in said classification process, ~~the~~ properties of the image are analyzed and at least one of objects and areas of like class membership are formed; and

in said geometric structure, analysis includes at least one of determining an edge contour of an object from an edge contour of an area and numerically characterizing [[an]] the object by a structure index.

17. (Previously Presented) The process according to claim 7, wherein said polygon is a rectangle.

18. (Previously Presented) The device according to claim 15, wherein said polygon is a rectangle.